DECLARATIVE AND PROCEDURAL KNOWLEDGE

Sub Stand - **FRACTIONS AND DECIMALS**

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| **DECLARATIVE Knowledge**  Students know: | **PROCEDURAL Knowledge**  Students are able to: |
| YEAR 1 | |
| * One half is two equal parts of a whole, collection or length | * Identify representations of one half of a whole, collection of length. * Describe one-half of a whole, collection or length. |
| YEAR 2 | |
| * Objects and collections can be partitioned into halves, quarters and eighths | * Recognise common uses of halves, quarters and eighths in shapes or collections. * Relate the number of parts to the size of a fraction |
| YEAR 3 | |
| * Areas, lengths and collections can be partitioned into halves, thirds, quarters and fifths. * Fractions can be represented as visual images and in written form, e.g. half, third, quarter fifth. * In the English language fractions, such as 1/3, is described using the term one third (order: numerator, denominator). However in other languages fractions may be expressed in the reverse order. For example, in Japanese, one third is expressed as ‘thee parts, one of them’. | * Model and represent unit fractions including 1/2, 1/4, 1/3, 1/5 and their multiples to a complete whole. * Locate unit fractions on a number line. * Create, solve and sort problems involving counting in halves, quarters, thirds and sixths for addition |
| YEAR 4 | |
| * Understand the meaning of equivalent fractions * How to simplify fractions using fraction families * Mixed numbers and proper and improper numbers * How to convert mixed numbers into improper fractions and vice versa. * Understand quarters, halves, thirds and mixed numerals * Understand that using materials and the sharing strategy can assist with investigation of fractions * Understand that hundredths can also be represented as 10 tenths * Understand division and multiplication of 10 * Understand the relationship between fractions and decimals, and how they can be changed | * Recognise the relationship between quarters, halves, eights and thirds and sixths * Demonstrate knowledge of these relationships by folding a square piece of paper * Simplify larger fractions by demonstrating knowledge of relationships between fraction families * Demonstrate knowledge of mixed numbers and improper fractions by converting mixed numbers into improper fractions and vice versa * Count fluently in multiplication and division up to ten * Count in quarters, halves and thirds. * Recognise and represent fractions of quarters, halves, thirds, sixths, eighths on a number line * Recognise, compare and determine the smaller and larger fractions along with mixed numbers * Recognise an improper fraction from a proper fraction * Make connections between halves being represented as .5 and quarters being represented as .25 and so forth * Use materials to demonstrate that 10 tenths equals the same as 1 hundredth * Use division of 10 to represent changing 1 hundredth into 10 tenths * Use multiplication of 10 to represent changing 10 tenths into 1 hundredth * Demonstrate knowledge of fractions and decimal notation by converting fractions into decimals and vice versa |
| YEAR 5 | |
| * Common fractions can be compared and sequenced accurately on a number line * Common fractions can be represented on a number line * Problems involving the addition of fractions can be solved using visual representations, diagrams, mental and written strategies * Problems involving the subtraction of fractions can be solved using visual representations, diagrams, mental and written strategies * The place value system can be extended beyond hundredths * Number lines can be used to order compare and represent decimal numbers | * Compare common fractions * Order common fractions on a number line * Locate and represent common fractions on a number line * Recognise the connection between the order of fractions and their denominators on a number line * Investigate strategies to solve problems involving subtraction of fractions * Investigate strategies to solve problems involving addition of fractions * Solve problems involving addition and subtraction of fractions using visual representations and diagrams * Recognise that the place value system can be extended beyond hundredths * Recognise the equivalence of one thousandths and 0.001 * Compare and represent decimal numbers * Order and locate decimal numbers on a number line |
| YEAR 6 | |
| * the place value of fractions with denominators that relate. * fractions are parts of a whole number. * the place values of decimals. * decimals are parts of whole numbers. * the connections between fractions, decimals and percentage. * The value of decimals when problem solving by the powers of 10. | * Compare fractions with related denominators and locate and represent them on a number line * Solve problems involving addition and subtraction of fractions with the same or related denominators. * Find a simple fraction of a quantity where the result is a whole number, with and without digital technologies. * Add and subtract decimals, with and without digital technologies, and use estimation and rounding to check the reasonableness of answers. * Multiply decimals by whole numbers and perform divisions by non-zero whole numbers where the results are terminating decimals, with and without digital technologies. * Multiply and divide decimals by powers of 10. * Make connections between equivalent fractions, decimals and percentages |